



Within the Space and Life Sciences Directorate at NASA Johnson Space Center, the Advanced Technology Integration Group (ATIG) facilitates the identification and development of advanced technologies that support NASA's long-term goals for human space flight. In particular, we seek the integration of those critical technologies or capabilities that will enable crews to expand their presence in low Earth orbit and venture beyond.

Crew members Susan Helms, James Kelly, Paul Richards, and Andrew Thomas maneuver supplies inside the Leonardo module as they prepare the International Space Station for long-term human occupancy. (Credit: NASA)

want to learn more?

To learn more about NASA activities in space and life sciences, and to explore related research opportunities, please begin by visiting our Web site and the other sites listed on the right. For additional information, please contact us:

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Cover: Respirocytes, artificial blood cells with significant oxygen-carrying capacity, exemplify the potential of nanorobotics in biomedical research and medicine. (Credit: Forrest Bishop, artist and Robert Freitas Jr., designer)



GENERAL INFORMATION	NASA's Office of Biological & Physical Research (BPR) spaceresearch.nasa.gov JSC Space & Life Sciences Directorate www.jsc.nasa.gov/sa/index.htm JSC Advanced Technology Integration Group advtech.jsc.nasa.gov JSC Critical Path Roadmap criticalpath.jsc.nasa.gov NASA Technology Portal nasatechnology.nasa.gov JSC Office of Technology Transfer & Commercialization technology.jsc.nasa.gov NASA Research Announcements (NRAs) peer1.idi.usra.edu BPR Solicitations and Information research.hq.nasa.gov/code_u/code_u.cfm Small Business Innovation Research & Technology Transfer Programs sbr.gsfc.nasa.gov
TECHNOLOGY	
FUNDING	



ADVANCED
TECHNOLOGY
INTEGRATION
GROUP



achieving a vision

meeting the challenge



Our activities are ultimately directed towards fulfilling the mission of NASA's newest strategic enterprise, Biological and Physical Research (BPR). The BPR enterprise is charged with answering fundamental questions, including the key challenge:

How can we expand the human presence beyond our planet to achieve maximum benefits from space?

Our work also yields new vistas for research and technology development, thereby serving as a catalyst for the commercial development of space and Earth. We strive to ensure that all ATIG efforts result in technologies that not only fulfill specific NASA needs, but also are commercially viable products benefiting researchers and clinicians on Earth.



building better teams

The ATIG bolsters progress in life sciences research and medical operations by facilitating the development and integration of critical technologies. We cannot advocate certain technologies or capabilities nor do we control funds for technology development. We do, however, foster the teaming of exceptional technologies and/or technology developers with the NASA scientists and researchers who are potential users of these technologies.

The key to strong working relationships is communication of needs, recruitment of related communities who may share common needs or interests, and assessment of developers and development projects. To ensure conditions that are conducive to the success of researcher-developer teams, the ATIG:

- **identifies and evaluates NASA technology needs** for human space flight
- **targets critical areas** for technology development
- **presents NASA technology needs** to the appropriate communities
- **locates emerging technologies**
- **identifies and assesses technology developers** for their interest in collaborating with NASA

• engages and unites related communities by:

- organizing conferences, workshops, and meetings
- coordinating site visits to selected laboratories and facilities
- maintaining a web site with informative presentations

• facilitates formation and growth of researcher-developer teams.

We also identify and assess opportunities for external technology development that NASA researchers can contribute to, allowing them to be collaborators or partners in the maturation of vital technologies. Potential technology developers currently include the following:

- other NASA centers
- government and industrial sectors
 - Departments of Energy and Defense
 - National Institutes of Health
 - Defense Advanced Research Projects Agency
 - National Science Foundation
 - national laboratories
 - National Space Biomedical Research Institute
- NASA Technology Transfer Offices/Centers
- academia.

seeking the best outcomes

The most successful researcher-developer teams result in the development of needed technologies from a common pool of resources and with funding from competitive awards. We strongly encourage researcher-developer teams to leverage their expertise and knowledge by preparing joint proposals to competitive solicitations (offered by NASA or other entity). The joint proposal integrates expert guidance from the researcher, as a potential end user, with the expertise and approach of the technology developer. Collaborations may also be developed through Space Act Agreements, Memoranda of Understanding, or other existing mechanisms.



Crew members Joseph Tanner (left) and Carlos Noriega prepare for space-walking activities with a virtual reality training program. (Credit: NASA)